COPY OF ALL CLAIMS

1. An orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 which is isolated from microorganisms.
2. An orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 which is isolated from *Ashbya gossypii*.
3. An isolated amino-acid sequence encoded by a gene or its homologs as claimed in claim 1.
4. An isolated amino-acid sequence as claimed in claim 3, which comprises an enzymatically active protein.
5. A gene construct comprising an orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID No: 1 or its homologs as claimed in claim 1, where the gene or its homologs is functionally linked to one or more regulatory signals.
6. A gene construct as claimed in claim 5, whose gene expression is increased by the regulatory signals.
7. A vector comprising a gene construct as claimed in claim 5.
8. A microorganism comprising at least one gene construct as claimed in claim 5.
9. A process for producing uracil-auxotrophic microorganisms, which comprises modifying an orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs as claimed in claim 1 in such a way that the protein encoded by the gene is inactive, and introducing this modified gene into the microorganisms and integrating said gene by homologous recombination into

the genome of the organisms, and subsequently selecting these microorganisms for resistance to 5-fluoroorotic acid.

10. (amended) A process for inserting DNA into microorganisms, which comprises inserting a vector which comprises an intact orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs isolated from microorganisms which have at least 80% homology with the sequences SEQ ID NO: 1 as claimed in claim 1 together with at least one other nucleic acid sequence, into a microorganism which is deficient in orotidine-5'-phosphate decarboxylase nucleic acid sequence having the sequence SEQ ID NO: 1 and cultivating this microorganism on or in a culture medium without uracil.

11. A process as claimed in claim 10, wherein a linear DNA is used as vector.

12. (amended) A process as claimed in claim 10, wherein an *Ashbya gossypii* strain is used as the microorganism deficient in orotidine-5'-phosphate decarboxylase genes.

13. A process as claimed in claim 10, wherein at least one gene of riboflavin synthesis is inserted as additional gene into the microorganism.

14. (amended) A process for selecting cells, said process comprising the step of transforming cells with a gene sequence or its homologs as claimed in claim 1 and selecting for the transformed cells.

15. (amended) The process as claimed in claim 14 wherein said cells are *Ashbya gossypii.*

16. Homologs having 80% homology with the orotidine-5'-phosphate decarboxylase gene claimed in claim 1.

17. Homologs of the orotidine-5'-phosphate decarboxylase gene claimed in claim 2.